CTIS 164 - Technical Mathematics with Programming

Homework #1 (15%)

Deadline 13 March 2022, 23:55
Grouping No grouping, individual work (do not copy any part of a friend's program)
Submit Through moodle system
Material for submission only C source code as *YourSurname_Name.cpp, DO NOT SEND all project files, Only file with CPP extension. Otherwise, you will lose **10Pts**!*

Subject You will design an animating object with your own imagination. The user will be able to control the animation. Video clip of a sample homework is provided on the moodle page.

Important Note The scene shown in the video is given as just an example. You have to design your own screen and your own animation (your own background, moving object(s), etc.).

Minimum requirements: 90 Pts

- **(10pts)** Write your name, surname, and id on the screen. Give a meaningful title to the window. Design a background for your scene.
- **(30pts)** Design at least 1 complex object (car, bicycle, bird, airplane, rocket, UFO, etc.) composed of at least 8 subparts, using lines, triangles, circles, quads, polygon and so on. The object should not be seen on the initial screen. Display the complex object (at the click location), after the user presses mouse left button. After creating the object, each new click should relocate the object on the screen.
- **(50pts)** There should be two modes of animation: Manual and Autonomous. The user can switch between the modes using F1 function key. In the manual mode, the user can control the movement and direction of the object using arrow keys; in the autonomous mode, the object should animate in its current direction and the user can change its direction by arrow keys. Current mode and the direction must be displayed on the screen. The object should move in the opposite direction after reaching to the end of the frame.

Bonus Points: After completing these basics, you can make any improvements to your program as you wish. You will get extra points according to your creativity and your programming skills. But, you have to list these improvements in the beginning of your source code as comment lines. Additional functionalities that are not reported in the source code, will not get any bonus points.

Important Notes (your grade will be reduced, if you don't follow the following rules!)

- Name your source code as `YourSurname_Name.cpp`.
- At the beginning of your source code include a comment block containing your name, student number, section, problems in your program and additional functionalities, if any. If your program does not meet the minimum requirements, explain them in the PROBLEMS section of the given template source code.
- Use comment lines in your program.
- Do not create a window larger than 1400x800 pixels.
- Do not upload all project files. Do not upload a zip file. Upload only your source code with `.cpp` extension.
- Source codes that do not compile and run on the lab computers, will not be graded! It is the student's responsibility to check any compatibility problems before uploading onto moodle.
- If you miss the deadline you can send your source code via e-mail within 24 hours of the deadline. But your grade will be reduced by 40 percentage points.
- Materials sent later than 24 hours after the deadline, will not be graded.
- Sample video is given as just an example. You have to design your own screen and your own animation (your own scene, moving object, etc.).
- Do not copy any part of a friend's program. You can share ideas but not code. Sharing any part of C source code leads to grade 0.

Good luck :-)
Okyay